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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,476	12/11/2003	Masaki Tatsumi	245402008100	4261
25226	7590	09/20/2005		
MORRISON & FOERSTER LLP 755 PAGE MILL RD PALO ALTO, CA 94304-1018			EXAMINER DOLAN, JENNIFER M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,476

Applicant(s)

TATSUMI, MASAKI

Examiner

Jennifer M. Dolan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/11/03, 3/15/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-6) in the reply filed on 7/11/05 is acknowledged. Accordingly, claims 7-9 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,757,311 to Abe.

Abe discloses a monolithic multiple-wavelength laser device (figure 7) comprising a laser section (LD1) of a first wavelength (780 nm; see column 8, lines 45-46) and a laser section (LD2) of a second wavelength (650 nm; see column 8, lines 46-48) formed on a surface of a single GaAs substrate (30; column 8, lines 63-64), wherein the laser section of the first wavelength includes a real guide structure (column 11, lines 35-42; ridge stripe portion of layers 34 and 35 combined with insulating outer layer 44 forms a real guide structure) and the laser

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section of the second wavelength includes a loss guide structure (LD2 structure forms absorptive regions SA – see figure 1B, and hence operates as a loss guide; also see column 6; column 9, lines 45-64).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,358,764 to Nemoto in view of U.S. Patent Publication No. 2003/0021320 to Kan.

Nemoto discloses a monolithic multiple-wavelength laser device (see figures 5, 6) comprising a laser section of a first wavelength (LD1, CD laser operating at 780 nm) and a laser section of a second wavelength (LD2, DVD laser operating at 650 nm; see column 9, lines 30-34), wherein both laser sections include real guide structures (column 9, lines 55-60;

Nemoto does not teach that the laser section of the second wavelength, corresponding to the DVD laser, includes a loss guide structure.

Kan discloses that it is well known and well established in the art that lasers used for DVD light emission may alternately include a real guide structure in order to minimize waveguide loss and threshold current (see paragraph 0058; figure 12), whereas loss guide structures are used to stabilize and control the emission modes of the laser as well as eliminate kinks in the light output vs. current characteristic (see paragraphs 0020, 0059; Example 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the DVD laser of Nemoto, such that it includes a loss guide structure, as suggested by Kan. The rationale is as follows: A person having ordinary skill in the art would have been motivated to use a loss guide structure for the DVD laser in Nemoto, because Kan shows that such a structure provides greater stability and control of the emission mode by impeding excitation of higher order modes, and thus preventing 'kinks' in the current vs. light output characteristic of the laser (see Kan, paragraphs 0058-0059). Since both real guide and loss guide structures for DVD lasers and the relative advantages of each structure have been established in the field of semiconductor lasers, it is well within the purview of a person having ordinary skill in the art to select either a gain guide or a loss guide structure for a DVD laser, in order to achieve the well-known advantages of either structure.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe in view of U.S. Patent Publication No. 2003/0043875 to Gen-Ei et al.

Abe fails to disclose the crystallographic orientation of the GaAs substrate.

Gen-Ei teaches that when forming a GaAs-based laser, such as for CDs or DVDs, it is preferable to use a substrate having a major surface inclined 5-15 degrees from the (001) plane toward a [110] direction (see paragraphs 0030, 0092).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to specify the usage of an off-angle substrate, as suggested by Gen-Ei, in the laser structure of Abe. The rationale is as follows: A person having ordinary skill in the art would have been motivated to use an off-angle substrate as claimed, because doing so inhibits natural

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superlattice formation during crystal growth (see Gen-Ei, paragraph 0092), and thus permits a greater control of the growth of the quantum well active region of the laser.

Allowable Subject Matter

7. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The primary reason for allowability include the structural limitations that the laser section of the first wavelength (real guide structured section – see claim 1) is formed as a ridge portion with a three-layer burying structure, the structure including the GaAs, AlGaAs, and insulative dielectric layers as specified, in addition to the other limitations in the claims.

The prior art of record pertaining to semiconductor buried ridge lasers having real-guide waveguides generally teaches using a single insulating or semi-insulating layer to bury the waveguides (see for example Abe, Nemoto, US 2002/0185643 to Uchida et al.). The closest art of record for a multi-layered burying structure is U.S. Patent No. 6,287,884 to Jie, which teaches a two-layer burying structure including a semiconductor layer with a dielectric layer disposed thereon. The prior art offers no suggestion or motivation, however, for using the claimed three-layer structure specifically including a GaAs layer, and AlGaAs layer, and a dielectric layer having the specified thicknesses. Since the specific layers used in the ridge burying structure directly affect the waveguiding properties of the laser, and since the prior art provides no teachings of the claimed three-layer burying structure, it is the Examiner's opinion that the usage

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of the claimed three layer burying structure would not have been obvious to a person having ordinary skill in the art.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,865,203 to Yoshida et al. discloses background information on real guides and loss guides as applied to buried ridge semiconductor lasers.

U.S. Patent No. 6,480,456 to Kawamura discloses a monolithic CD/DVD laser assembly wherein different burying structures are used for the CD and DVD lasers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Dolan whose telephone number is (571) 272-1690. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

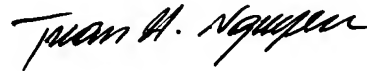
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer M. Dolan
Examiner
Art Unit 2813

jmd



Tuan H. Nguyen
Primary Examiner